

1. THE MAJORITY OF THE TREATMENT PLANT EQUIPMENT (DRUM

M4 IS BEING SUPPLIED (FURNISHED) BY PRAQUA, HEREAFTER

IN THE VARIOUS EQUIPMENT SCHEDULES). THE CONTRACTOR IS

REQUIRED TO MAKE A COMPLETE AND FUNCTIONING TREATMENT

STORAGE OF ALL MATERIALS FURNISHED AND SUPPLIED BY THE

THEY HAVE BEEN DELIVERED. ALL DELIVERIES SHALL ALSO BE

SUPPLIER; AND ANY LOSS OR DAMAGE TO SAID MATERIALS AFTER

COORDINATED WITH THE ENGINEER AND IN ACCORDANCE WITH THE

CONTRACTOR'S CONSTRUCTION SCHEDULE (AS SUBMITTED AT THE

START OF THE PROJECT). THE OWNER SHALL BE PREPARED TO

ACCEPT AND STORE SAID EQUIPMENT UNTIL THE CONSTRUCTION IS

3. THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL PARTS OF

SUBCONTRACTORS ARE FAMILIAR WITH THE SECTIONS PERTAINING TO

ALLOWED UNLESS AGREED UPON BY ALL PARTIES IN WRITING PRIOR

SUPPLIER THE CLEANING, FLUSHING, TESTING AND START-UP OF ALL

5. THE CONTRACTOR IS RESPONSIBLE FOR GIVING THE STATE OF UTAH

TWO WEEKS PRIOR NOTICE OF WHEN THE SUPPLIER'S COMMISSIONING

VISIT(S) ARE REQUIRED, AND FOR ENSURING THAT THE SYSTEM IS AT

THE APPROPRIATE LEVEL OF READINESS AT THE TIME OF THE VISIT(S).

BETWEEN THE VARIOUS TRADES REQUIRED OF THE TREATMENT PLANT

6. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL WORK

7. ANY OMISSIONS OR CONFLICTS BETWEEN THE PLANS AND THE

THE PROJECT SHALL BE BROUGHT TO THE ATTENTION OF THE

8. ALL CONSTRUCTION, WORKMANSHIP, AND MATERIALS SHALL

CODE, PLUMBING CODE, ELECTRICAL CODE, AND PROJECT

ACTUAL CONDITIONS ENCOUNTERED IN THE VARIOUS ELEMENTS OF

ENGINEER AND RESOLVED BY THE SAME BEFORE PROCEEDING WITH

CONFORM TO THE LATEST EDITIONS OF THE INTERNATIONAL BUILDING

9. THE CONTRACTOR IS RESPONSIBLE TO VERIFY AND COORDINATE

ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE SITE WITH THE

FACILITIES AND APPURTENANT SITE WORK IMPROVEMENTS.

4. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE

TREATMENT PLANT EQUIPMENT AFTER IT HAS BEEN INSTALLED

THEIR AREA OF WORK. NO DEVIATIONS FROM THE DRAWINGS WILL BE

THE PLANS AND SPECIFICATIONS AND INSURE THAT ALL

ACCORDING TO THE DRAWINGS AND SPECIFICATIONS.

TO CONSTRUCTION AND/OR FABRICATION.

REQUIRED TO INSTALL ALL OF THE EQUIPMENT AND MATERIALS

FILTERS, UV REACTORS, PUMPS, CONTROLS) AND THE ABOVE-GRADE

VALVES, FITTINGS, AND PIPE AS INDICATED ON DRAWINGS M1 THRU

REFERRED TO AS SUPPLIER. ALL EQUIPMENT AND MATERIALS TO BE

SUPPLIED BY THE SUPPLIER ARE SHOWN ON THE DRAWINGS (NOTED

SUPPLIED BY THE SUPPLIER. ALL OTHER EQUIPMENT AND MATERIALS

FACILITY ARE THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH

2. THE CONTRACTOR IS REQUIRED TO COORDINATE DELIVERY OF THE

IS RESPONSIBLE FOR: THE REQUEST FOR DELIVERY; UNLOADING AND

SYSTEM TREATMENT EQUIPMENT WITH THE SUPPLIER. THE CONTRACTOR

TREATMENT SYSTEM EQUIPMENT

AND INSTALL.

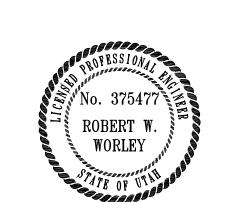
ADVANCED.

PREPARED BY: SUNRISE ENGINEERING, INC. 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL. (435) 743-6151 FAX (435) 743-7900

PROJECT NAME:

UTAH DIVISION OF WILDLIFE RESOURCES MAMMOTH CREEK **HATCHERY** INFLOW FILTRATION 2005

ENGINEER'S STAMP



B

MARK DATE DESCRIPTION

ISSUE TYPE: 100%

ISSUE DATE: August 5, 2005

DFCM PROJECT NO: 04007520

SEI PROJECT NO: 01882 CAD DWG FILE: Mmth Cr Htch G01-03 DRAWN BY: CJC

CHK'D BY: RWW COPYRIGHT: STATE OF UTAH

DRAWING TITLE

DESIGN CRITERIA & CONSTRUCTIONS NOTES

DRAWING NUMBER

G3

DESIGN CRITERIA

GENERAL BACKGROUND

THE PURPOSE OF THIS PROJECT IS TO INSTALL A TREATMENT PLANT TO REMOVE/INACTIVATE WHIRLING DISEASE FROM THE TWO SOURCES THAT FEED THE MAMMOTH CREEK HATCHERY.

OVER THE LAST DECADE THE PROBLEMS ASSOCIATED WITH WHIRLING DISEASE HAVE BEEN INCREASING. IN 2002, THE MAMMOTH CREEK STATE FISH HATCHERY, HATCH, UTAH WAS CLOSED DUE TO THE PRESENCE OF WHIRLING DISEASE

THE WHIRLING DISEASE PARASITE GOES THROUGH A COMPLEX LIFE CYCLE AND PART OF THAT LIFE CYCLE IS TO ENTER A FISH AND ATTACK THE CARTILAGE TISSUE OF THE FISH'S HEAD AND SPINE. THE PARASITE STARTS OFF AS A MICROSCOPIC MYXOSPORE (APPROXIMATELY 8 TO 10 MICRONS IN SIZE) IN THE HEAD OF A FISH. WHEN THE FISH DIES, THE MYXOSPORES ARE RELEASED AND MUST BE EVENTUALLY EATEN BY THE AQUATIC WORM TUBIFEX TO COMPLETE THE TWO-HOST LIFE CYCLE. INSIDE THE TUBIFEX WORM, THE SPORE CHANGES FORM AND BECOMES A TRIACTINOMYXON (TAM). AFTER SEVERAL MONTHS OF DEVELOPMENT, THE TAMS ARE RELEASED FROM THE TUBIFEX WORM AND INTO THE TROUT BECOME INFECTED WHEN A TAM CLINGS TO A FISH'S BODY AND WORKS ITS WAY INTO THE FISH'S NERVOUS SYSTEM. ONCE INSIDE THE FISH, THE PARASITE CHANGES FORM AGAIN AND MOVES INTO THE FISH'S CARTILAGE TISSUES WHERE IT DEVELOPS INTO A MATURE SPORE IN 3 TO 5 MONTHS. AFTER SEVERAL WEEKS, INFECTED FISH MAY EXHIBIT A "WHIRLING" BEHAVIOR. SPINAL OR HEAD DEFORMITIES AND BLACK TAILS. WHEN AN INFECTED FISH DIES AND DECOMPOSES, THE SPORES ARE RELEASED INTO THE ENVIRONMENT AND CAN SURVIVE TRANSIT THROUGH A PREDATOR'S DIGESTIVE TRACT OR CAN BE TRANSFORMED ON MUDDY BOOTS OR OTHER EQUIPMENT.

IN THE WINTER OF 2004-2005, THE UTAH DIVISION OF WILDLIFE PERFORMED A PILOT STUDY TO VERIFY THE PERFORMANCE OF TWO SEPARATE MANUFACTURES EQUIPMENT. BOTH EQUIPMENT PILOTS PROVED SUCCESSFUILL IN REMOVING/INACTIVATING TAMS FROM THE WATER SOURCE. BASED UPON THE RESULTS OF THIS PILOT, A SCORING PANEL SELECTED PRAQUA TO PROVIDE THE MAJOR EQUIPMENT FOR THIS TREATMENT PLANT

DESIGN FLOW

THE FLOW OF THE TWO SPRINGS FEEDING THE HATCHERY ARE: EAST SPRING 2 CFS WEST SPRING 3 CFS

THIS TREATMENT PLANT IS DESIGNED TO TREAT A MAXIMUM OF 3 CFS (1350 GPM) OF INFLOW TO THE HATCHERY. THE PLANT CONSISTS OF AN INLET BOX, TWO DRUM FILTERS AND TWO UV UNITS. THE FISH HATCHERY CANNOT GO WITHOUT WATER FOR ANY EXTENDED PERIOD OF TIME. THEREFORE, THIS TREATMENT PLANT MUST BE DESIGNED WITH REDUNDANT EQUIPMENT. THIS WILL ALLOW THE OPERATOR TO TAKE ONE COMPONENT OF THE EQUIPMENT OFF LINE AS MAINTENANCE REQUIRES AND STILL MAINTAIN 3 CFS FLOW TO THE FISH.

DRUM FILTER

THE TWO DRUM FILTER PROVIDED BY PRAQUA EACH HAVE THE CAPACITY TO REMOVE ALL PARTICLES LARGER THAN 21 MICRONS AT 3 CFS. THE PURPOSE OF THE DRUM FILTER IS NOT TO REMOVE THE TAMS (ALTHOUGH THE PILOT STUDY INDICATED THAT A PORTION OF THE TAMS WERE REMOVED BY THE FILTERS). THE PURPOSE OF THE DRUM FILTER RATHER IS TO REMOVE PARTICLES IN THE WATER THAT WOULD HINDER THE EFFECTIVENESS OF THE UV DISINFECTION.

UV DISINFECTION

THE TWO UV DISINFECTION UNITS PROVIDED BY PRAQUA (MANUFACTURED BY TROJAN UV) EACH HAVE THE CAPACITY TO TREAT 3 CFS AT A RATE OF 50 MJ/CM 2 . THE UV DISINFECTION IS DESIGNED WITH A SAFETY DEVICE THAT WILL ENSURE THAT ALL WATER THROUGH THE UV IS PROPERLY DISINFECTED. THIS WILL BE DONE WITH THE USE OF A ELECTRIC ACTUATED BUTTERFLY VALVE IMMEDIATELY UPSTREAM FROM EACH UV. IF AT ANY TIME. THE UV DOSAGE CONCENTRATION FALLS BELOW 50 MJ/CM 2 OR POWER TO A UNIT IS LOST. THE CONTROL PANEL WILL AUTOMATICALLY SHUT THE ACTUATED VALVE UPSTREAM OF THAT UV UNIT.

IN THE EVENT OF A POWER FAILURE, EACH UV IS EQUIPPED WITH A UNINTERUPTABEL POWER SUPPLY (UPS) TO PROVIDE POWER TO THE UV UNTIL THE BACKUP GENERATOR CAN BE STARTED. THE BACKUP GENERATOR IS ALSO EQUIPPED WITH AN AUTOMATIC TRANSFER SWITCH TO AUTOMATICALLY START THE GENERATOR IN THE EVENT OF A POWER FAILURE. THE GENERATOR AND AUTOMATIC TRANSFER SWITCH SHOULD BE TESTED REGULARLY PER THE MANUFACTURES RECOMMENDATIONS TO ENSURE THAT IT WILL FUNCTION PROPERLY IN THE EVENT OF A POWER FAILURE.

- 1. MAMMOTH CREEK HATCHERY HAS CULINARY WATER LINES, HATCHERY FEED & DRAIN LINES, POWER, AND TELEPHONE LINES, ETC. THE LOCATION OF THE EXISTING UTILITIES HAVE BEEN SHOWN TO THE BEST OF THE ENGINEER'S ABILITY; HOWEVER, THE CONTRACTOR HAS THE ULTIMATE RESPONSIBILITY TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. ANY DISTURBED UTILITIES DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED
- 2. ALL PIPELINES SHALL BE INSTALLED AT LOCATIONS AND DEPTH REQUIRED ON THE PLANS OR AS OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL NOT MOVE THE PLANNED ALIGNMENT OF ANY WATER PIPELINE WITHOUT THE WRITTEN CONSENT OF BOTH THE ENGINEER AND THE
- 3. ALL GATE AND/OR BUTTERFLY VALVES SHALL BE THE SAME SIZE AS THE
- 4. THE INSTALLATION OF VARIABLE SIZED OPENINGS IN TEES, ELBOWS, CROSSES, ETC. WHERE APPLICABLE IS AN ACCEPTABLE ALTERNATIVE TO THE USE OF REDUCERS. THE INSTALLATION OF TWO TEES IS AN ACCEPTABLE
- 5. EXISTING WATER SERVICE TO THE FISH SHALL BE LEFT IN OPERATION
- 6. ANY DEBRIS RESULTING FROM THE PROJECT SHALL BE DISPOSED OF BY THE CONTRACTOR. CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR DISPOSAL SITES AT WHICH SAID MATERIAL MAY BE LAWFULLY WASTED. FINAL GRADE OF DISTURBED AREAS IS SUBJECT TO THE ENGINEER'S AND OWNER'S
- 7. AN EFFORT HAS BEEN MADE TO SHOW THE EXISTING SYSTEM AND THE PROPOSED IMPROVEMENTS AS ACCURATELY AS POSSIBLE. ALL PIPELINE LOCATIONS, SIZES AND TYPES ARE SHOWN ACCORDING TO THE INFORMATION AVAILABLE TO THE ENGINEER. HOWEVER, THE ACTUAL FIELD CONDITIONS MAY VARY. ADDITIONAL WORK MAY BE REQUIRED AND LIKEWISE PROPOSED WORK MAY BE ELIMINATED BASED ON ACTUAL FIELD CONDITIONS. IT SHALL BE THE PIPELINES WHERE WORK IS TO BE PERFORMED.
- 8. SITE DISTURBANCE SHALL BE KEPT AT A MINIMUM. WHERE POSSIBLE THE VEGETATION SHALL BE PROTECTED AND PRESERVED.
- 9. ALL FINISHED COLORS ARE TO BE DETERMINED BY SUBMITTAL AND
- 10. THE OWNER WILL PROVIDE TREATMENT PROCESS MECHANICAL EQUIPMENT THROUGH A SEPARATE SUPPLIER. ALL OTHER EQUIPMENT FOR HVAC, ELECTRICAL SYSTEMS, ETC. SHALL BE PROVIDED BY THE CONTRACTOR. REGARDLESS OF SUPPLIER. CONTRACTOR SHALL INSURE THAT ALL EQUIPMENT IS INSTALLED IN A TIMELY MANNER, WITH REASONABLE COORDINATION TO

STEEL BUILDING DESIGN CRITERIA

- 1. SEE SPECIAL PROVISION 13150SP FOR DESIGN REQUIREMENTS

GENERAL

AT THE CONTRACTOR'S EXPENSE.

CONSTRUCTION NOTES

- OWNER.
- PIPELINE TO WHICH THEY CONNECT.
- ALTERNATIVE TO THE USE OF A CROSS.
- DURING CONSTRUCTION.
- APPROVAL AND IS TO BE DONE IN A NEAT AND WORKMANLIKE MANNER.
- CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE LOCATION. SIZE AND TYPE OF
- APPROVED IN WRITING BY THE HATCHERY OPERATOR.
- INSURE INTEGRATION OF EQUIPMENT AND A FULLY FUNCTIONAL FACILITY.

2. THE NATIVE SOIL HAS AN ALLOWABLE PRESSURE OF 1500 PSI

SAFETY NOTES

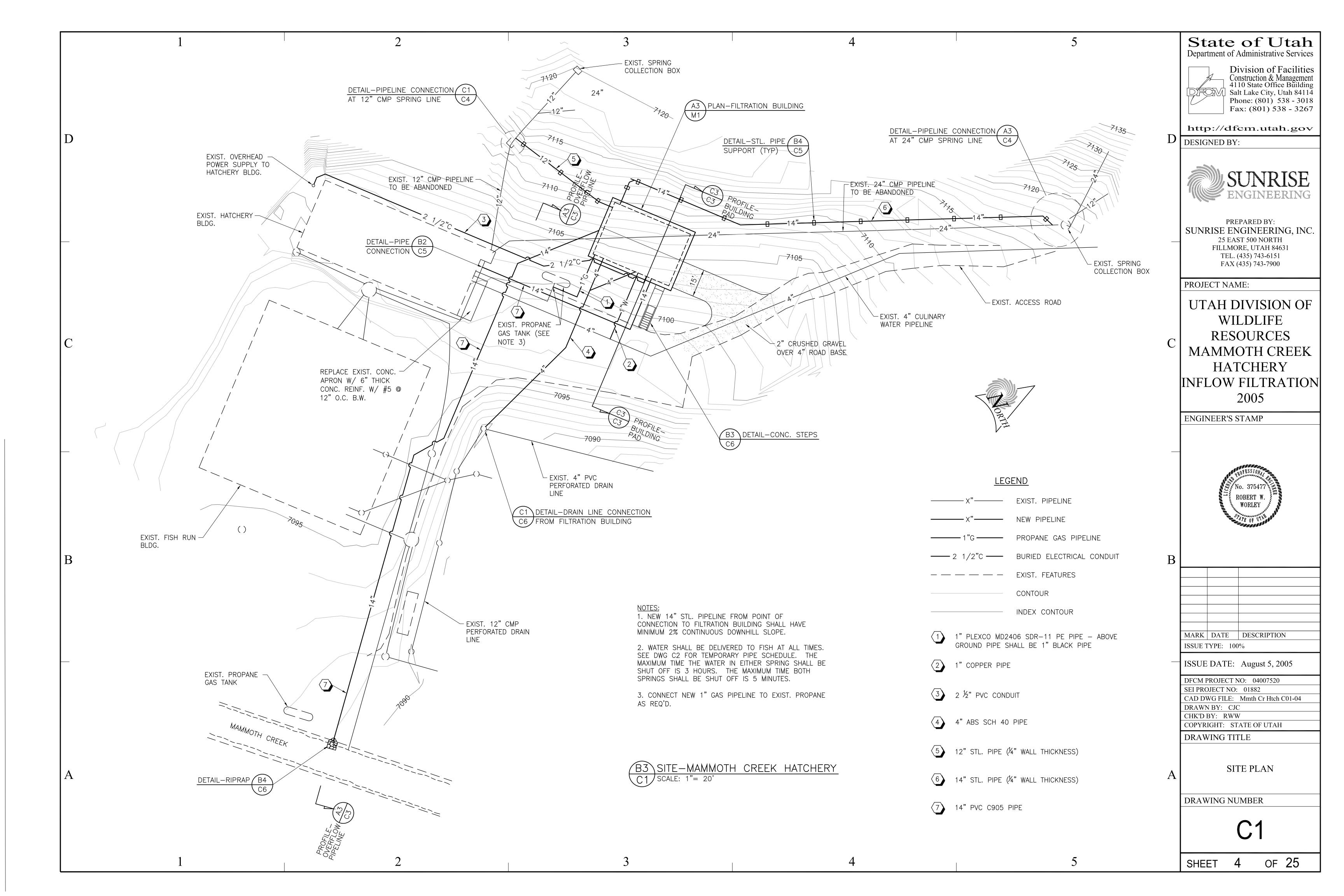
CONSTRUCTION DRAWINGS.

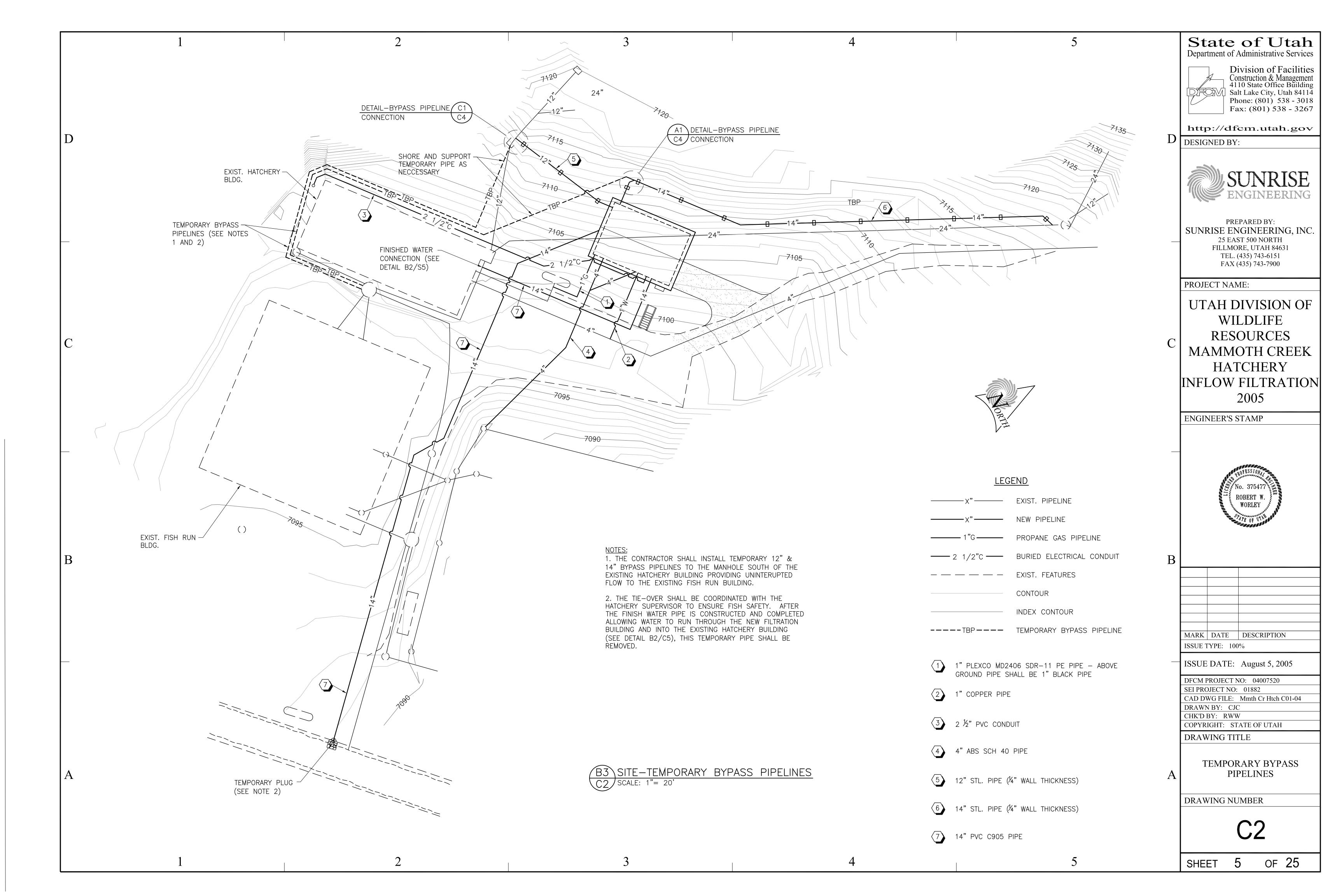
ANY WORK INVOLVED.

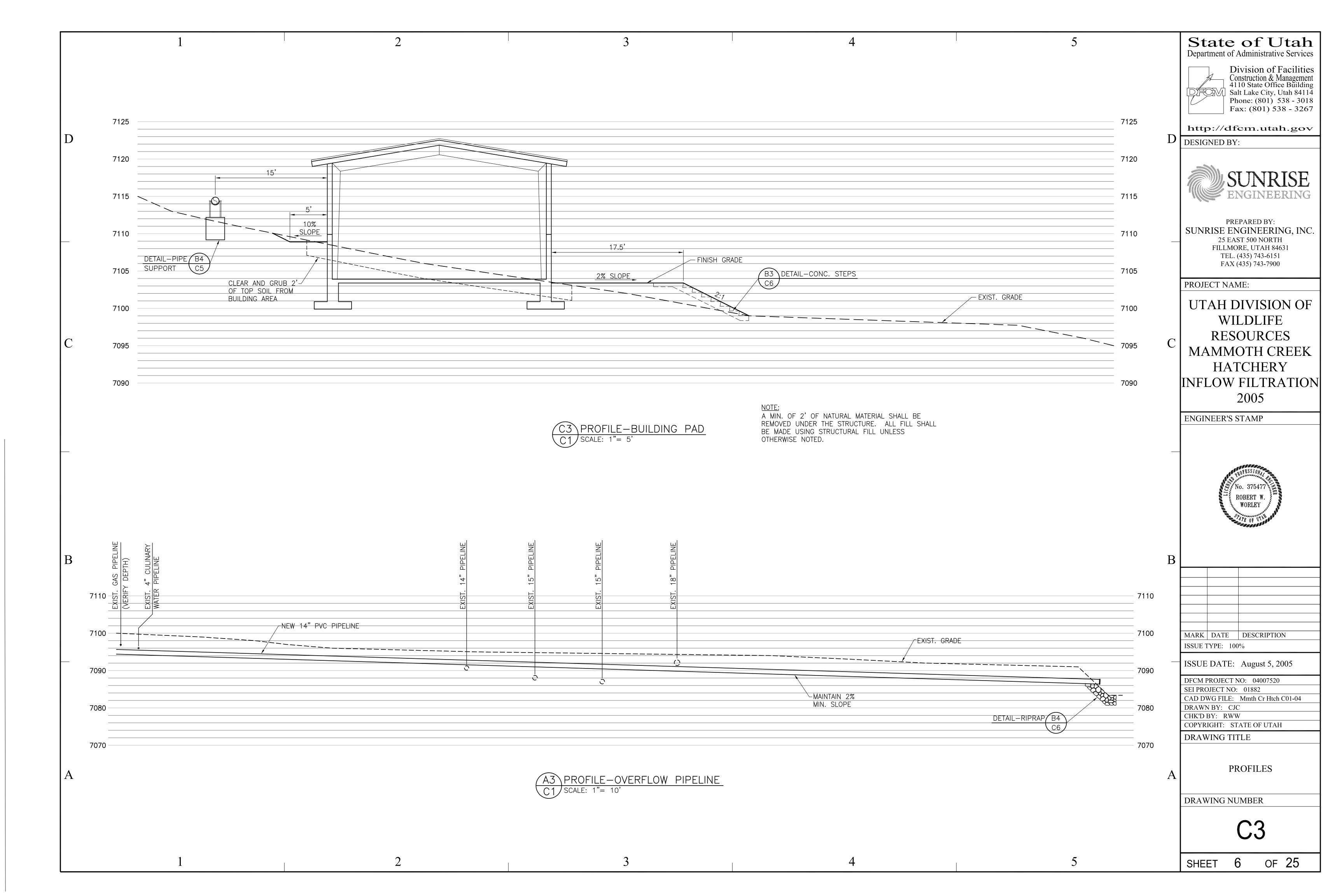
SPECIFICATIONS.

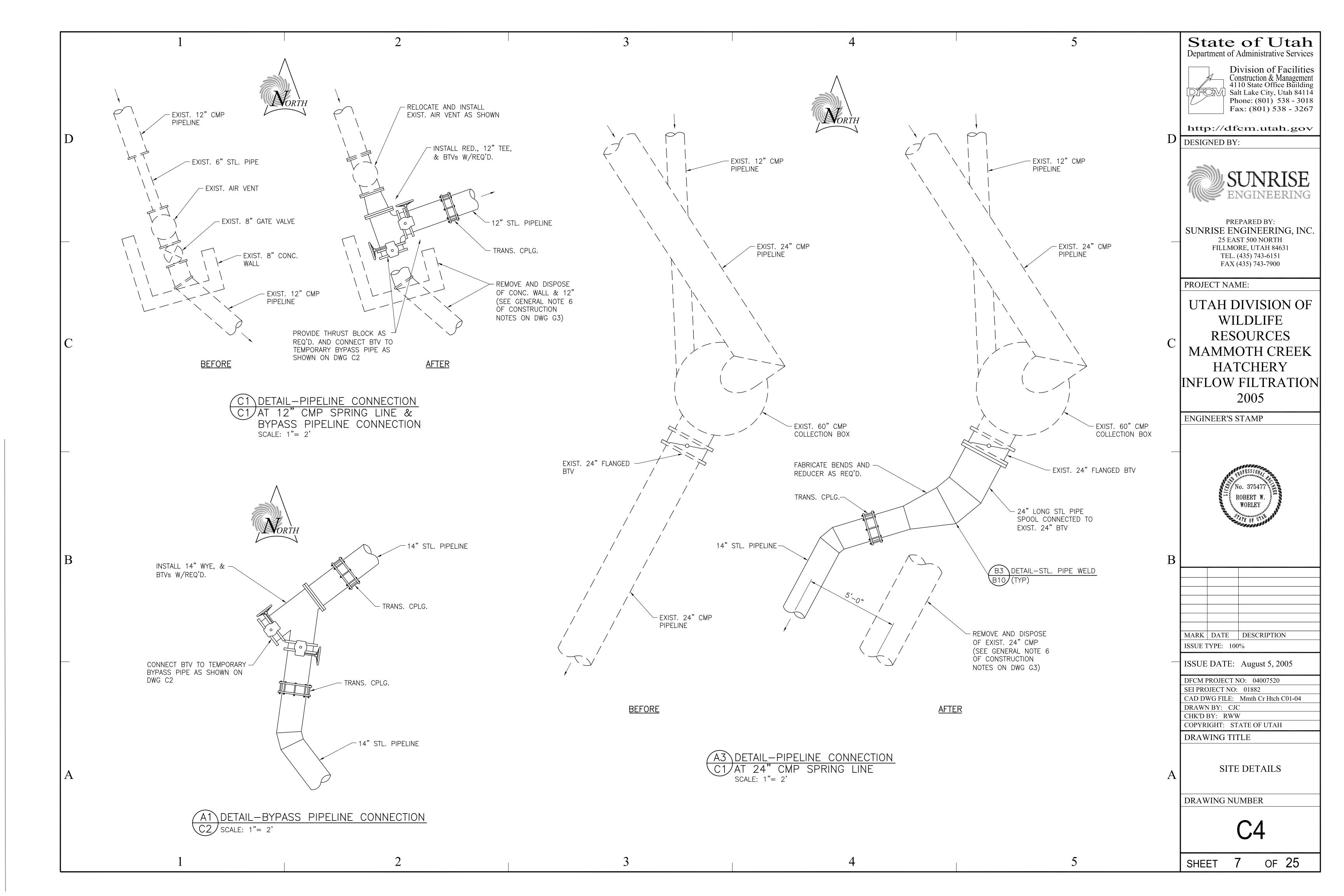
- 1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL STATE OF UTAH SAFETY STANDARDS AND OSHA REQUIREMENTS AS THEY APPLY TO THE PROJECT.
- 2. THE ENGINEER OR OWNER DOES NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS AND SHORING REQUIRED.

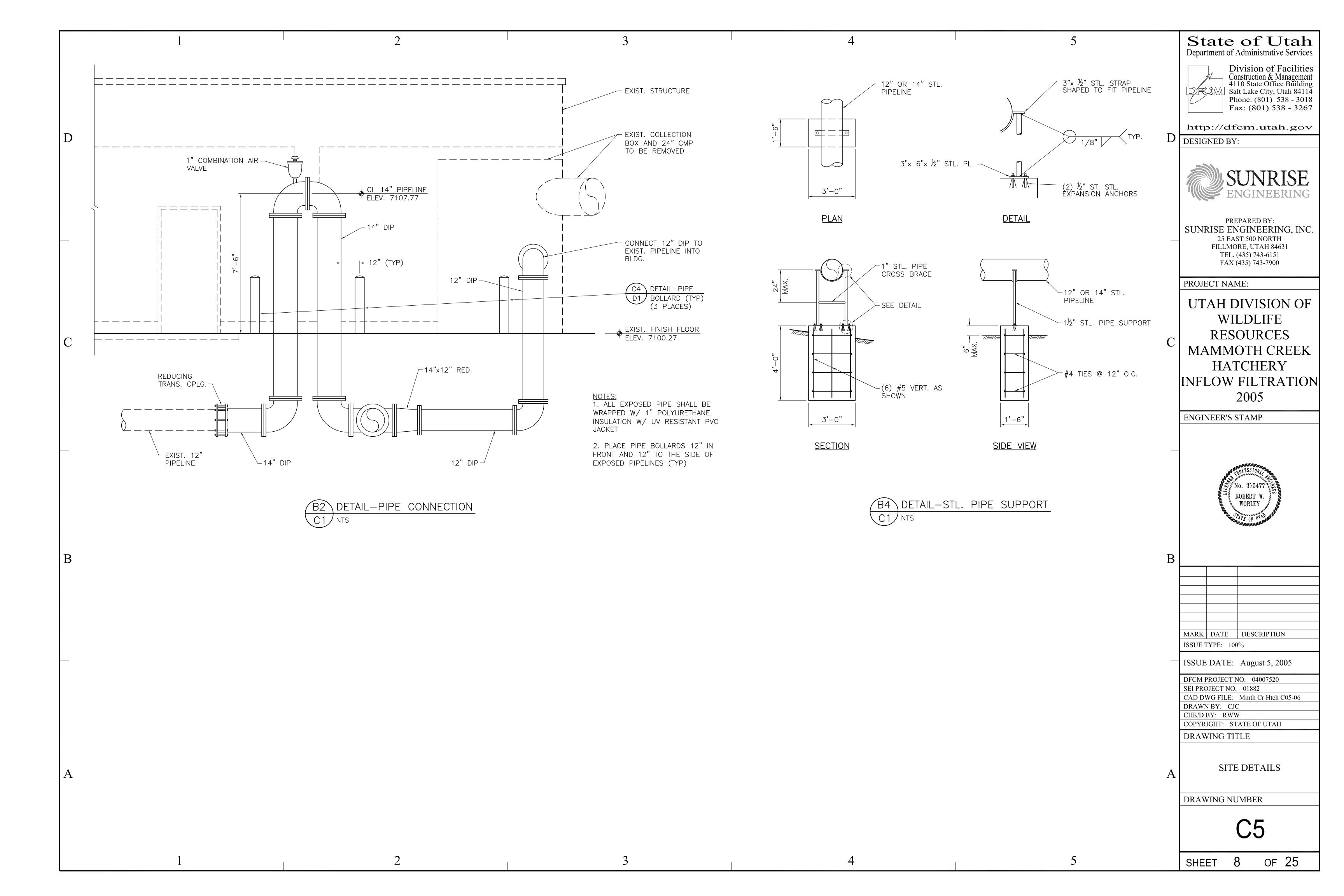
OF 25 SHEET

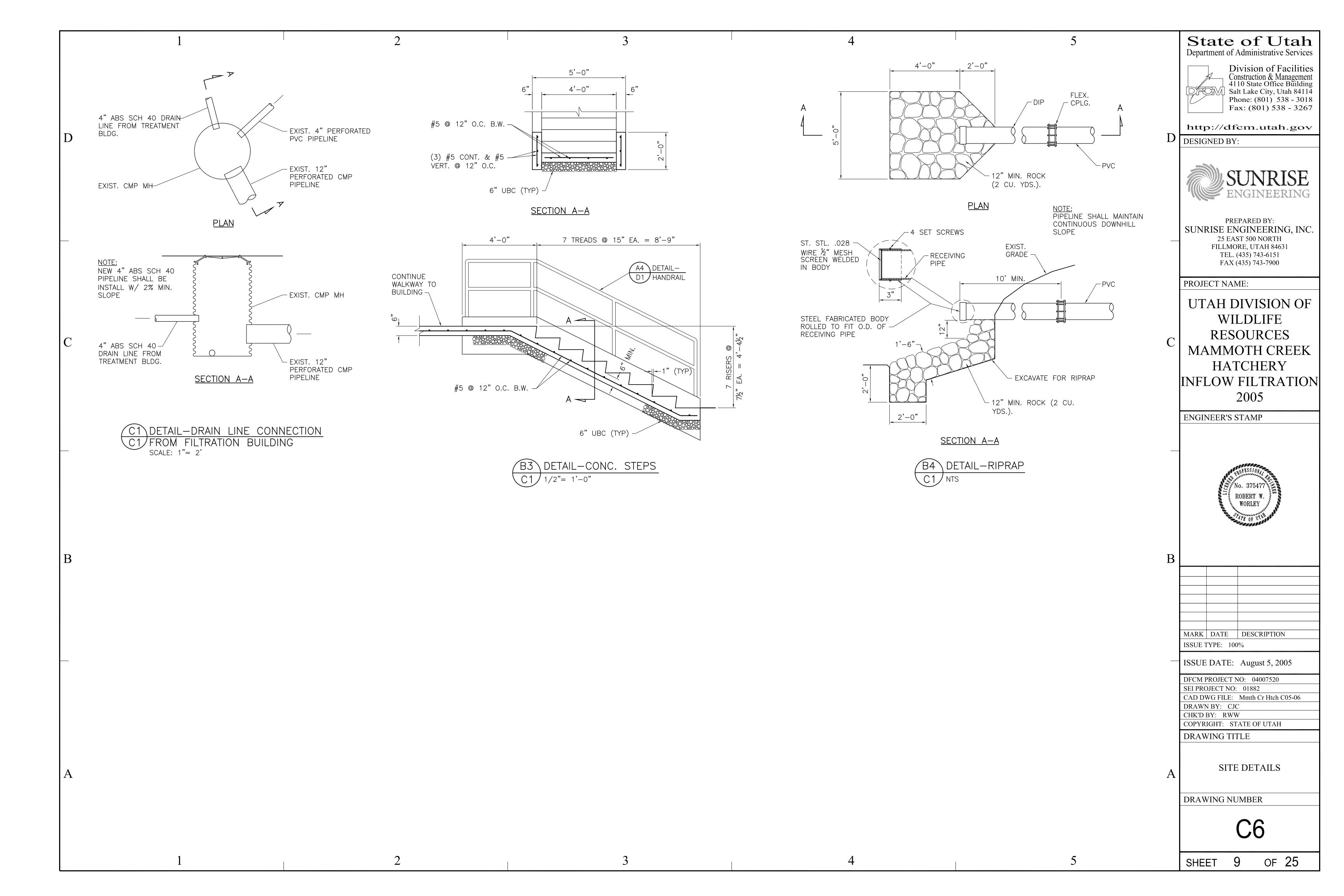


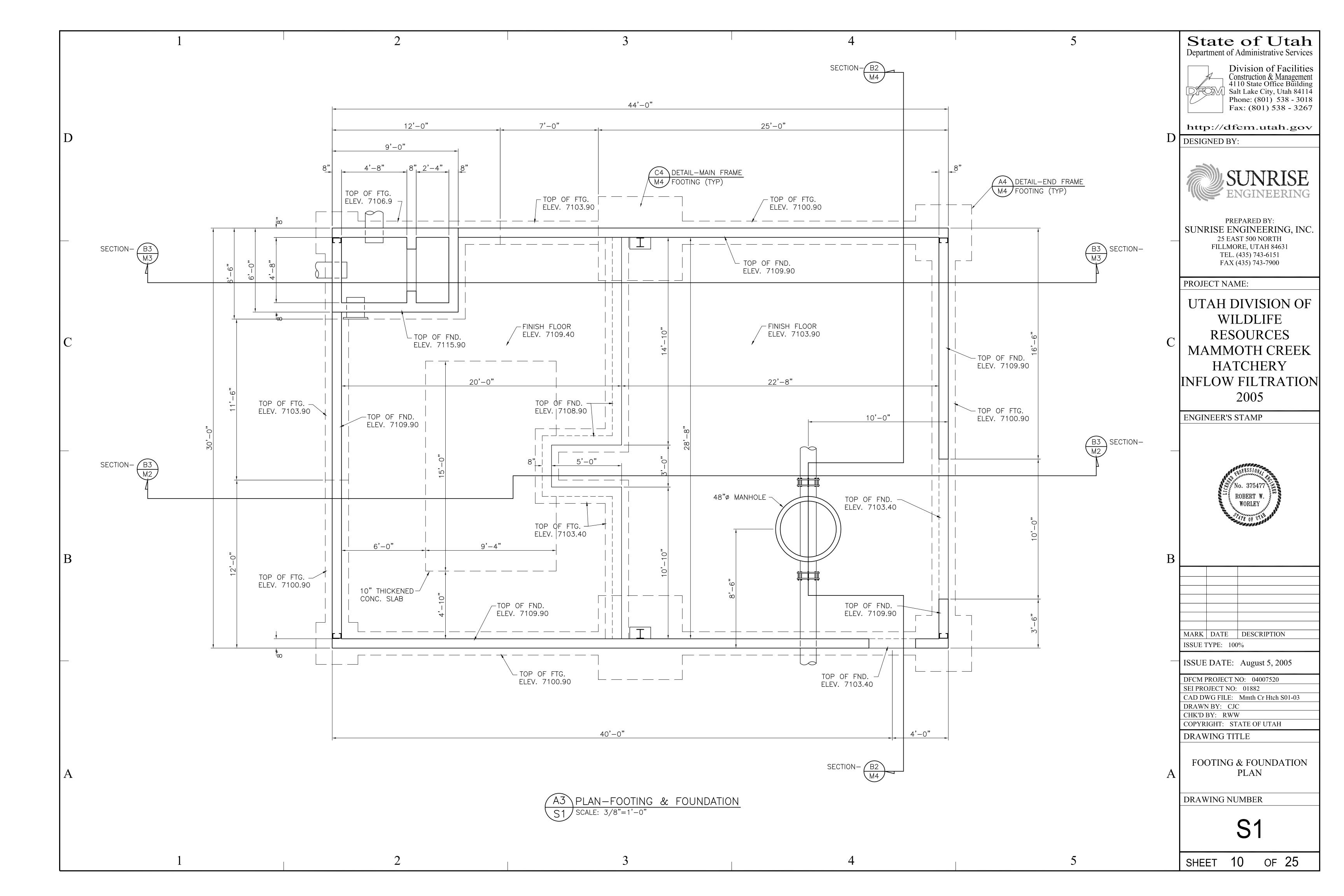


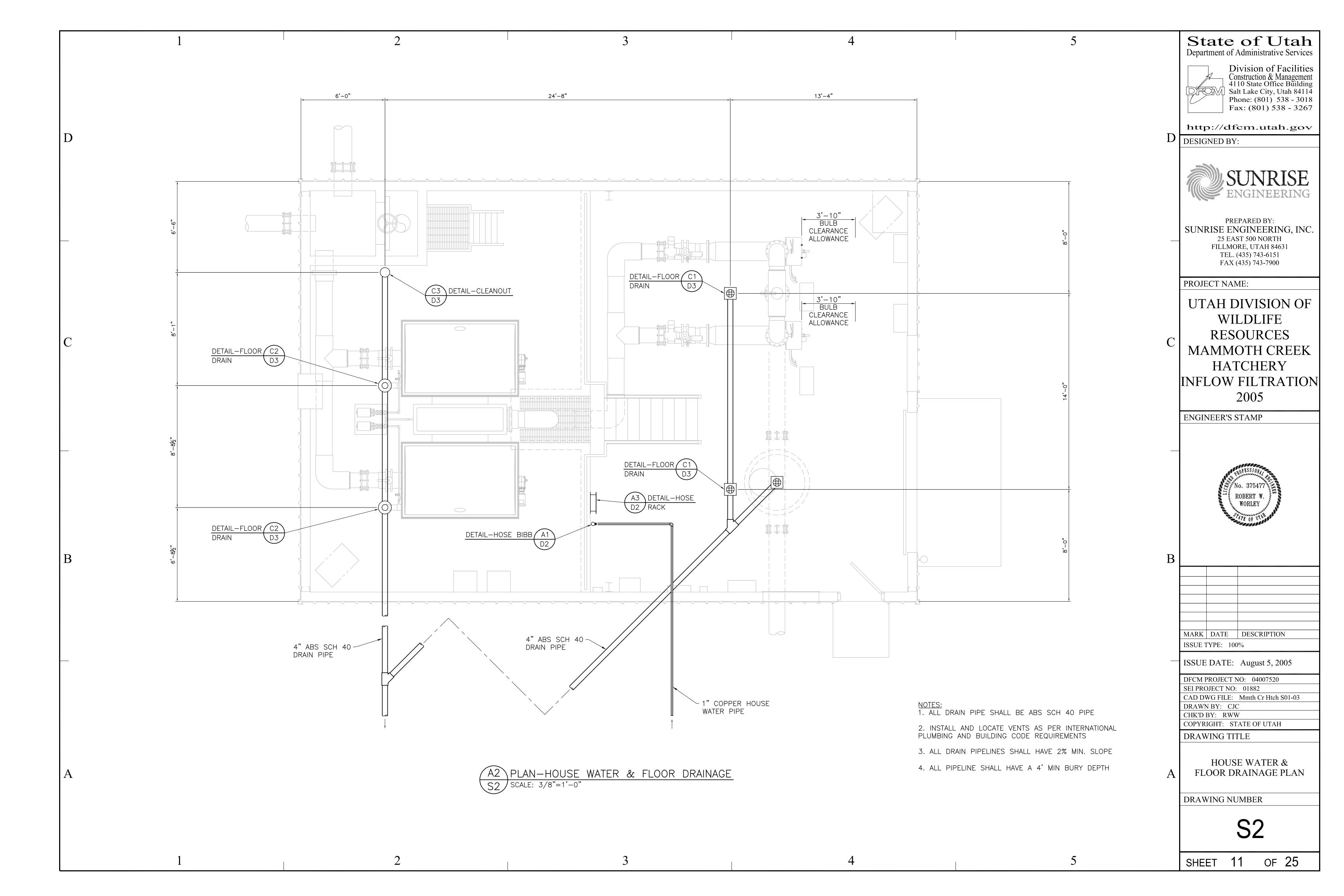


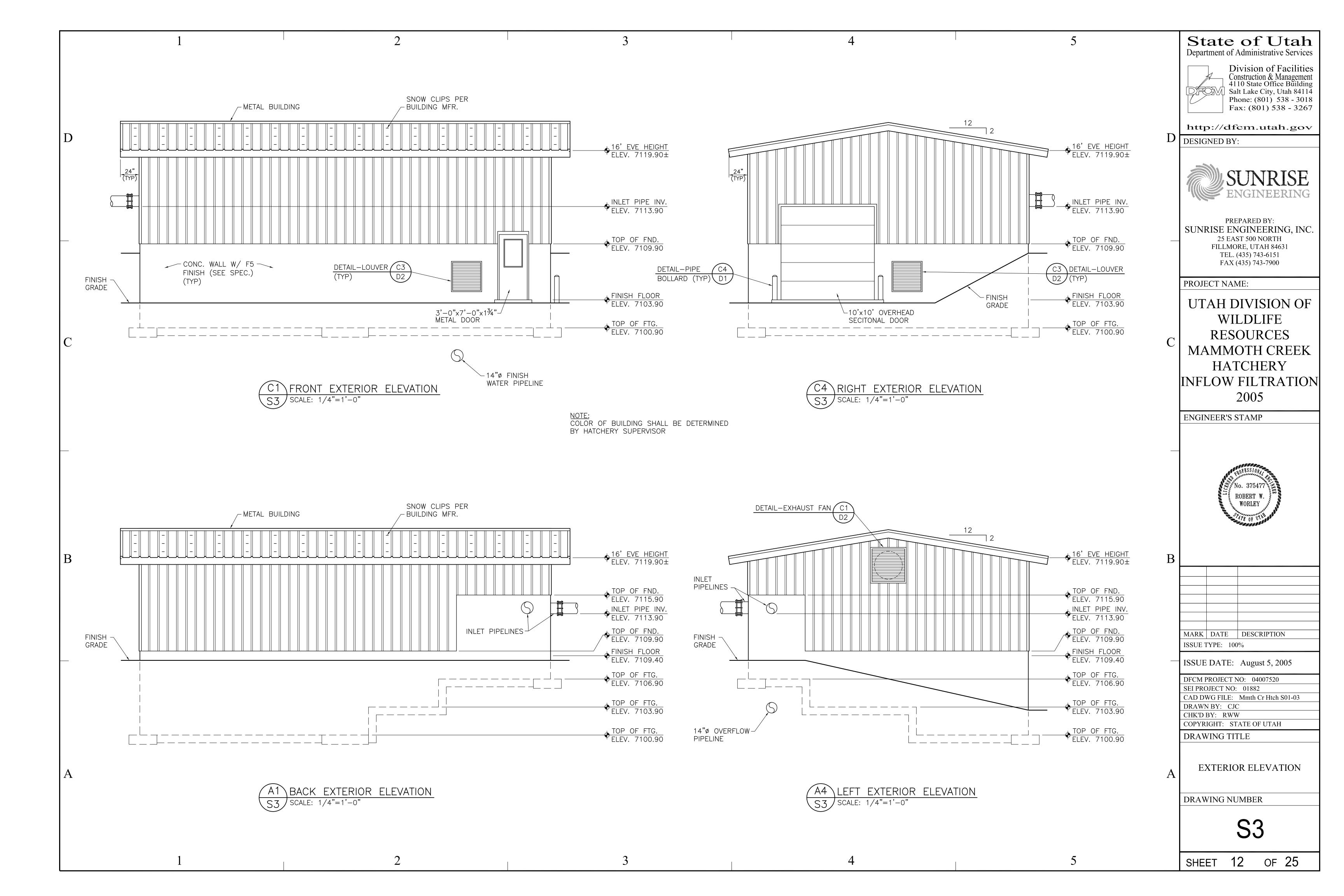


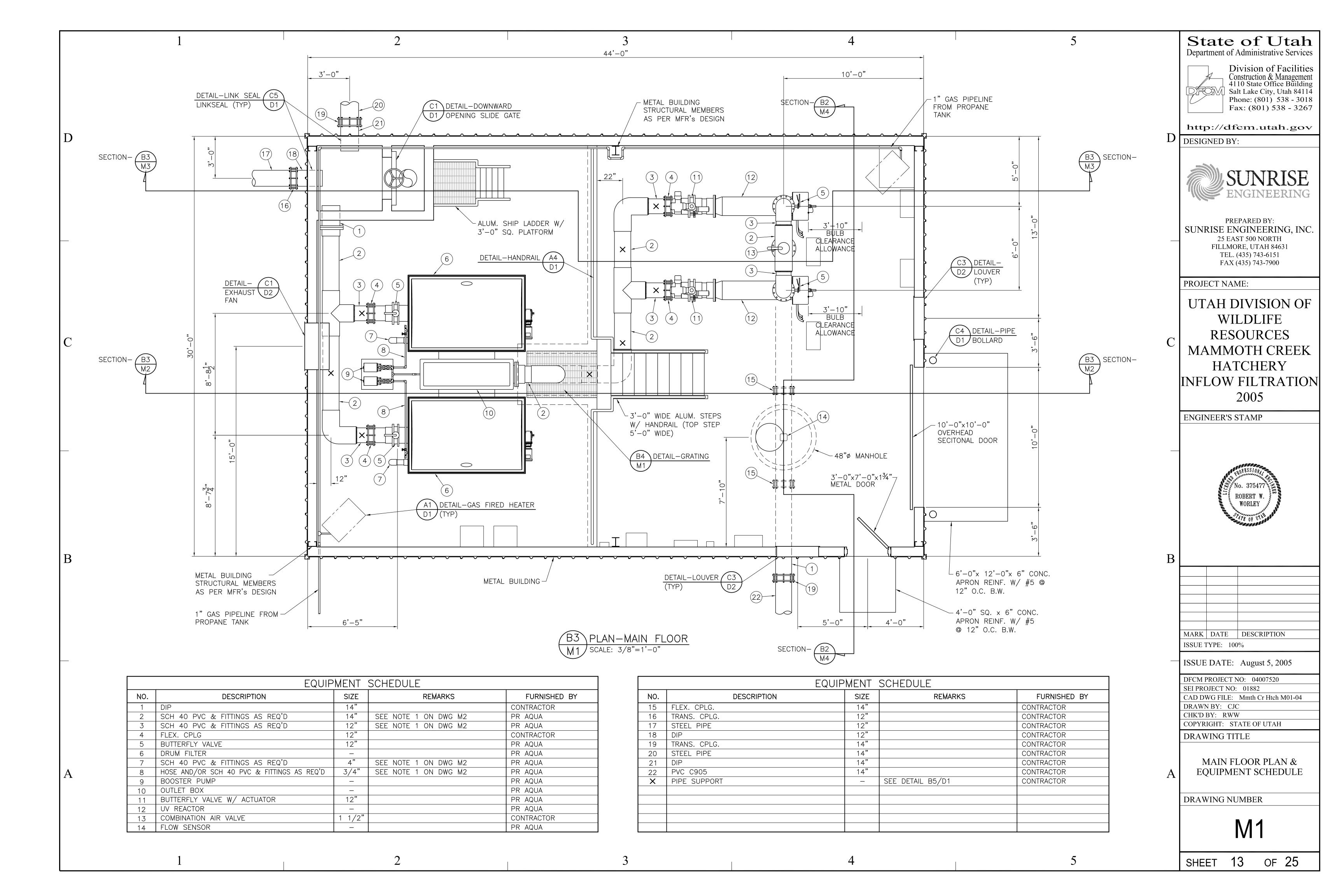


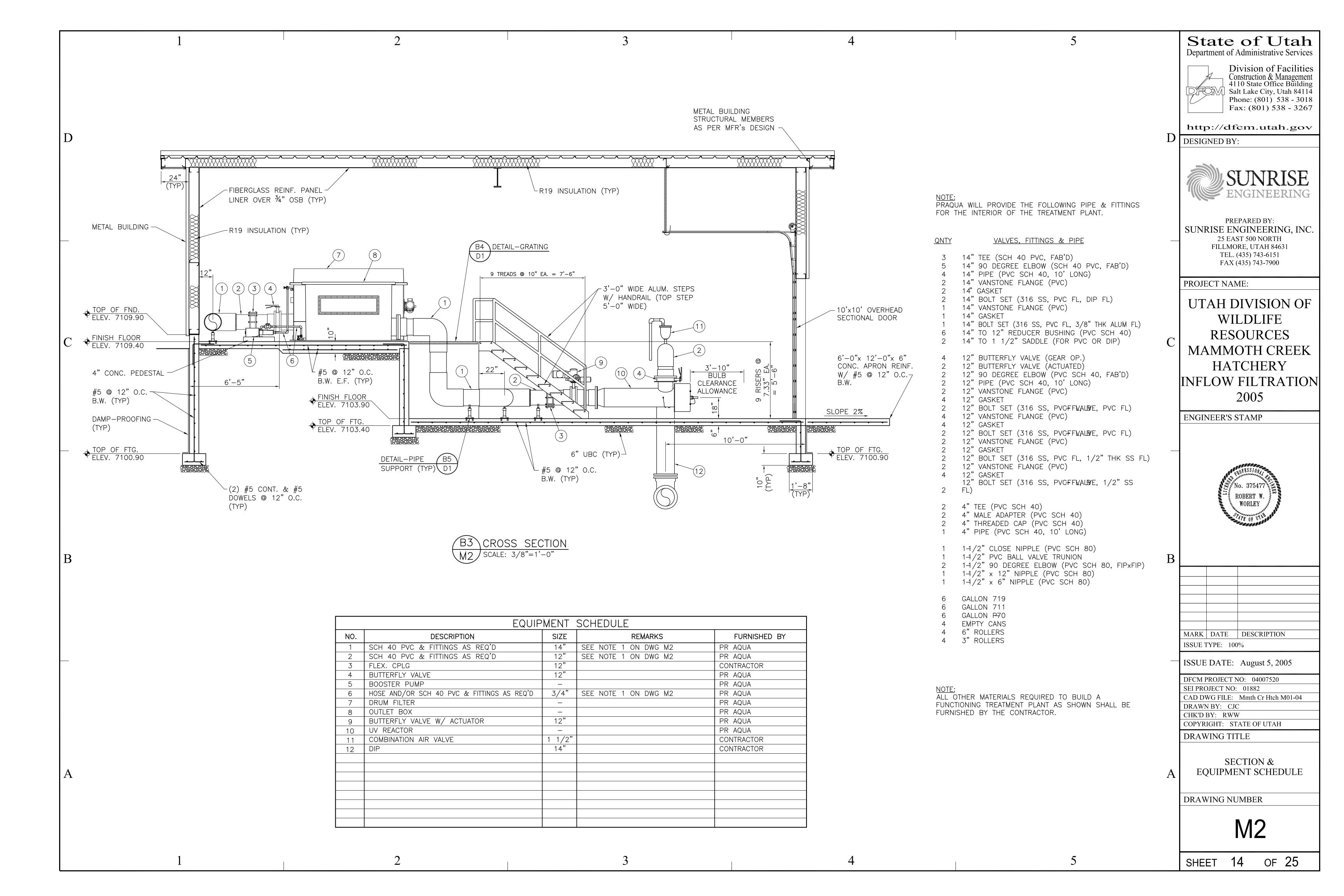


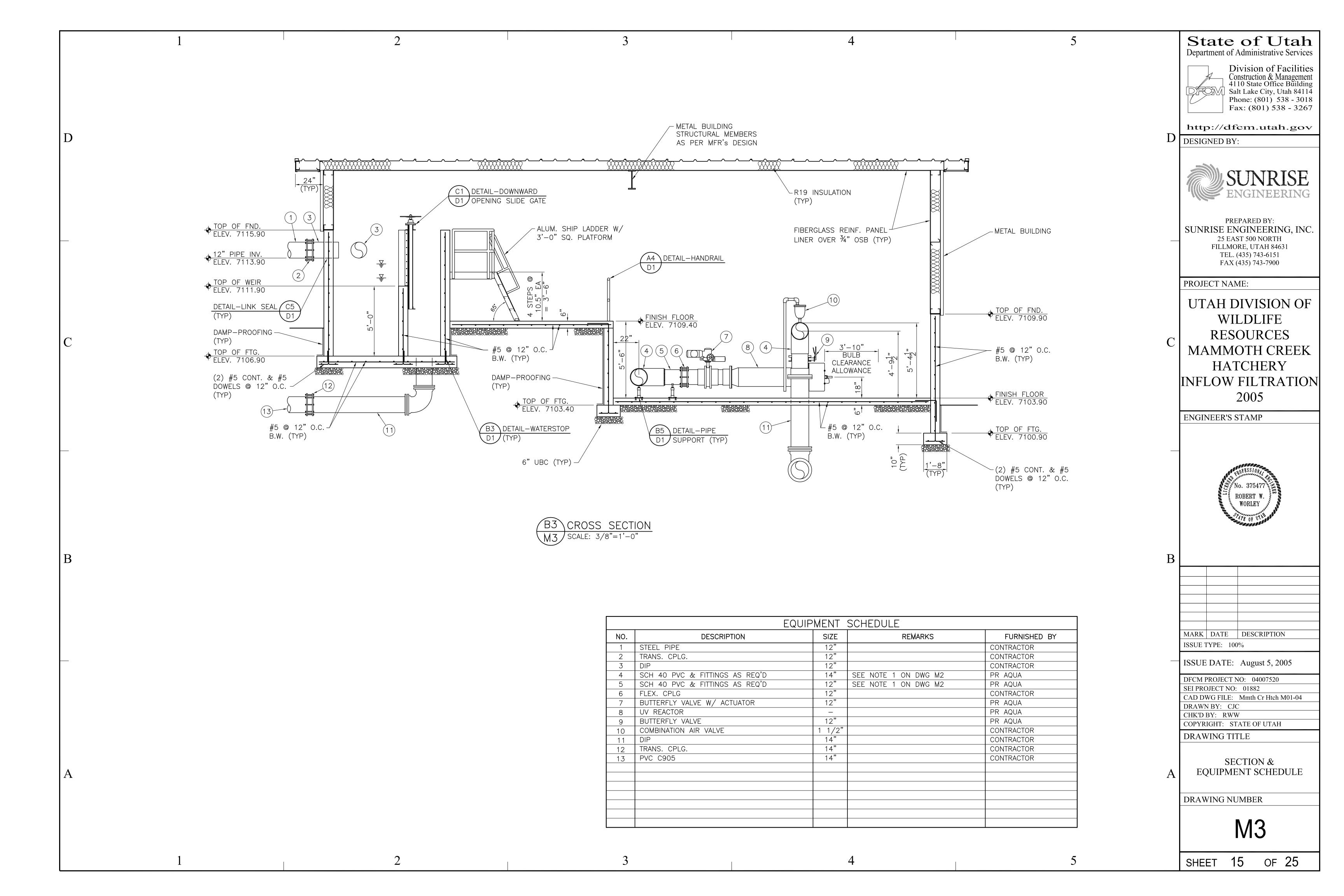


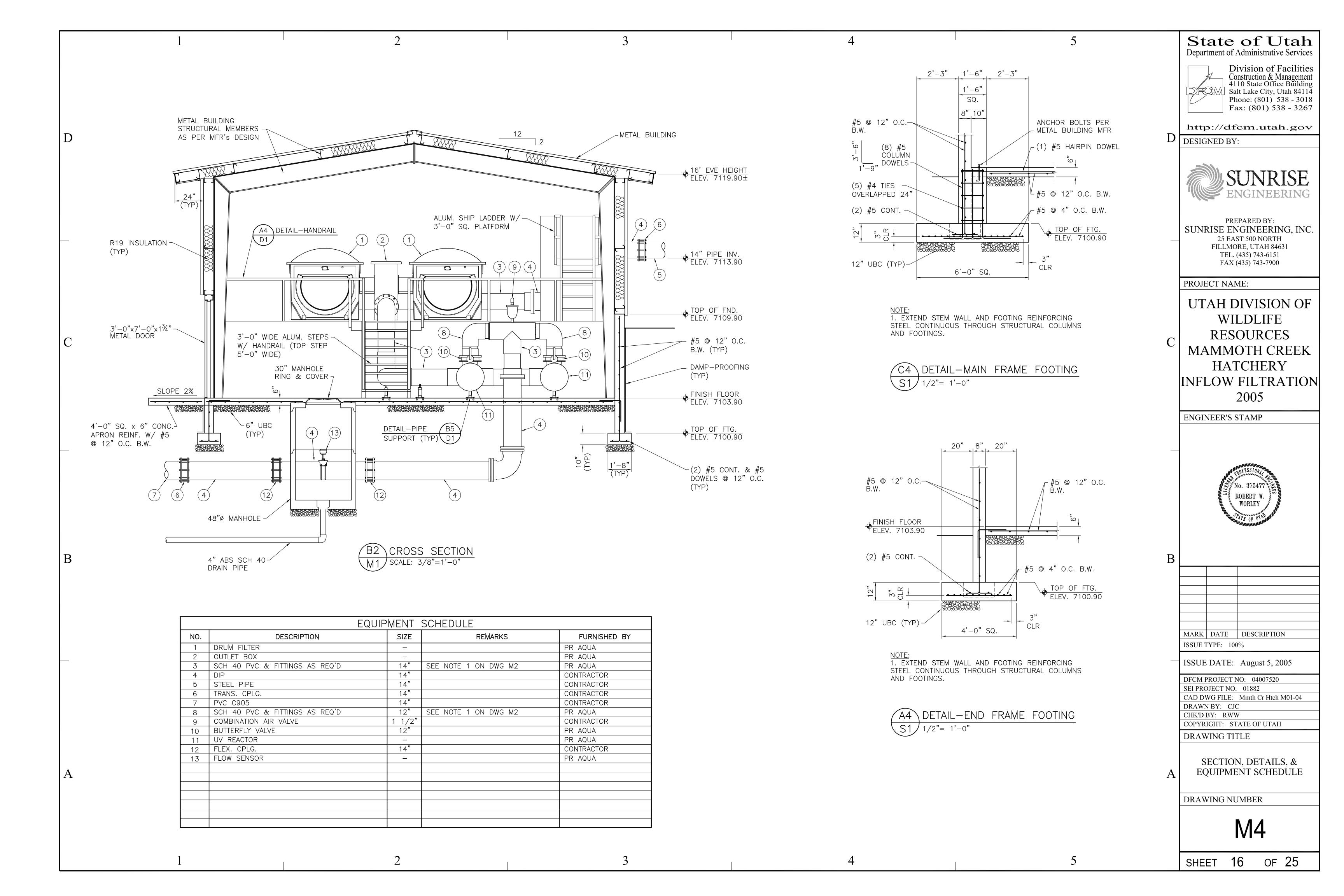


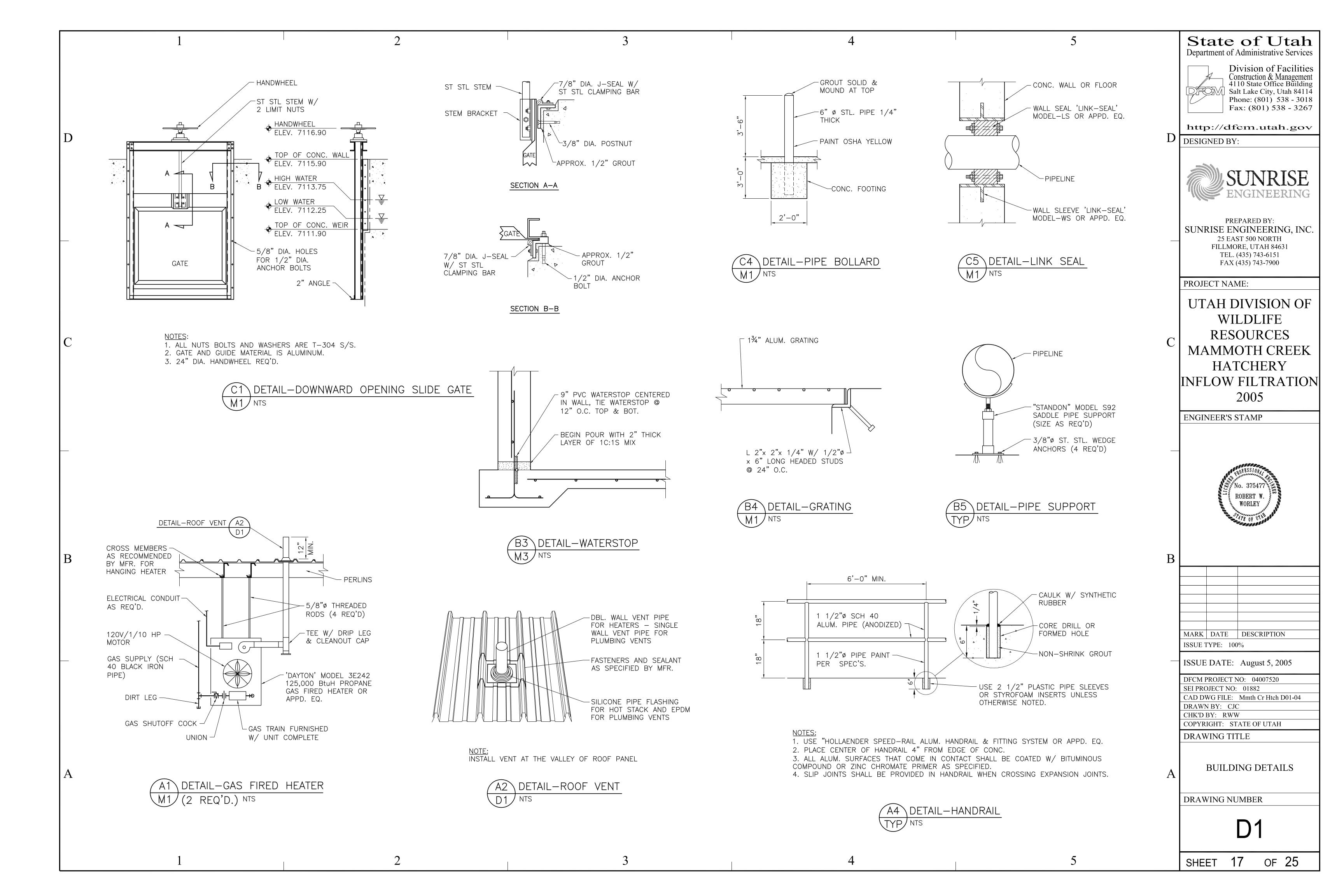


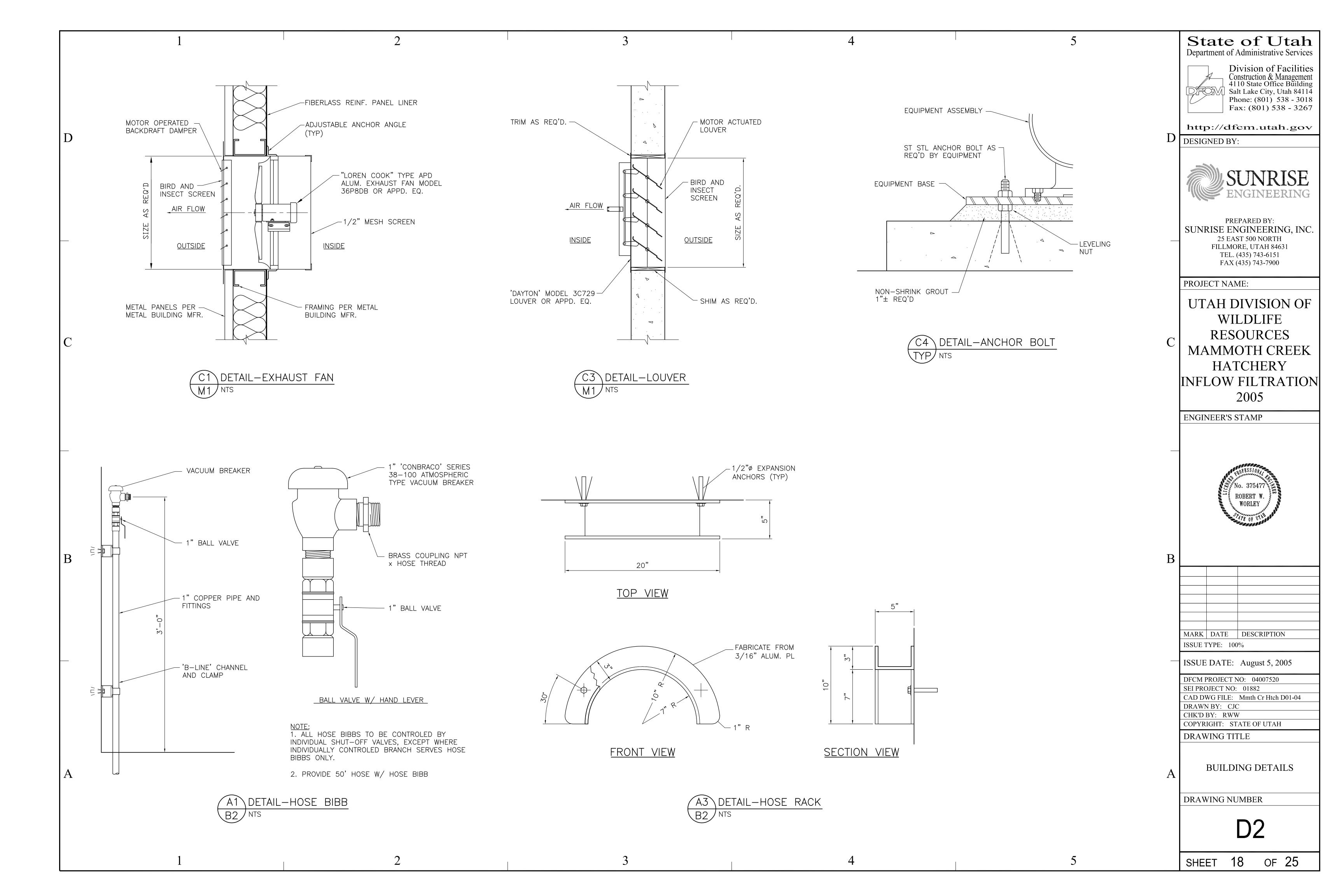


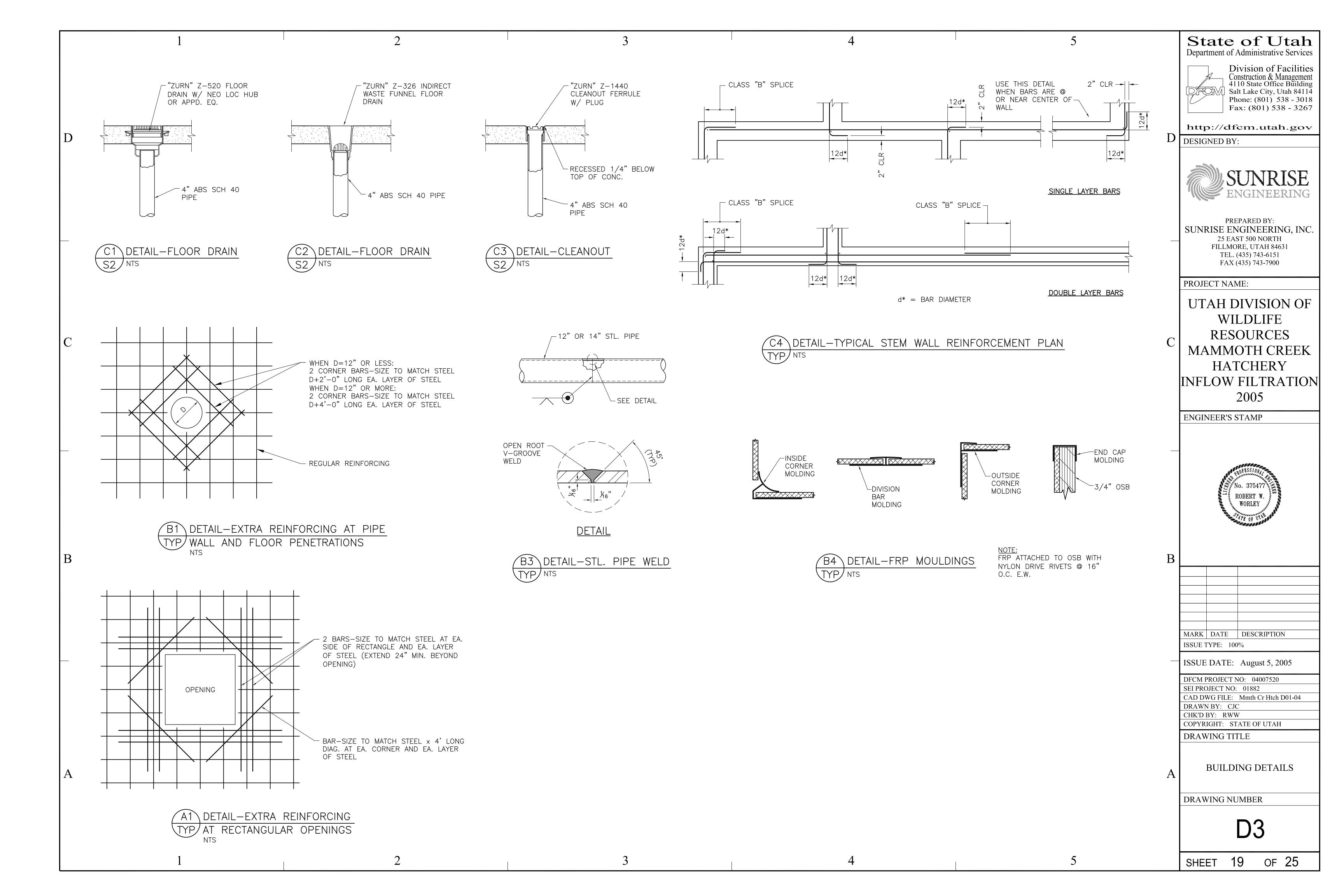


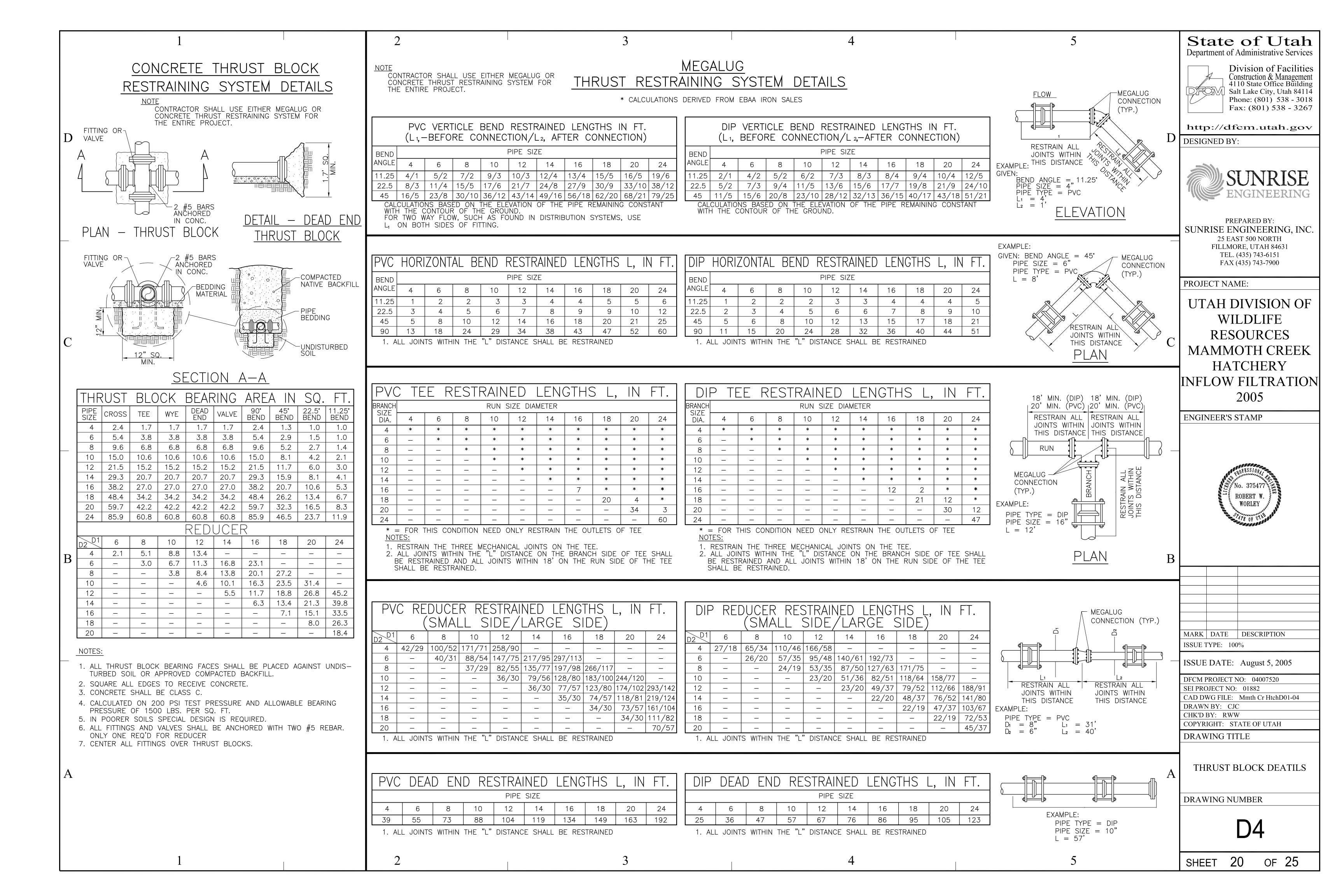












	1	2	3	4	5	State of Utah Department of Administrative Services
		<u>ELECTRICAL STANDA</u>	ARDS LEGEND		GENERAL ELECTRICAL REQUIREMENTS	Division of Facilities Construction & Management 4110 State Office Building Salt Lake City, Utah 84114
						Phone: (801) 538 - 3018 Fax: (801) 538 - 3267
D	DIRECT BURIED OR CONCRETE EMBEDDED CONDUIT CONDUIT RUN EXPOSED	DATA NETWORK JACK [XX] FUSE; XX — DENOTES AMPERAGE	NORMALLY CLOSED PUSHBUTTON OOO NORMALLY OPEN PUSHBUTTON	FORCED AIR HEATER HEATER	 THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE ORDINANCES AND REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES. 	http://dfcm.utah.gov
•	—— PROCESS FLOW ——● ELECTRICAL WIRING (PANEL CIRCUITS)	120 V GROUND FAULT INTERRUPTER GFCI DUPLEX RECEPTACIE	RTM RUNNING TIME METER	BASEBOARD HEATER	ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE, FINISHED AND SAFE MANNER, ACCORDING TO THE LATEST PUBLISHED N.E.C.A. STANDARDS OF INSTALLATION, UNDER COMPETENT SUPERVISION.	D DESIGNED BY:
		120 V DUPLEX RECEPTACLE, WP WP (WEATHER PROOF) 240 V RECEPTACLE	☑ OR J MOTOR STARTER - NUMBER INDICATES SIZE	HEAT EXCHANGER	INSTALL GROUNDING AND ALL ELECTRICAL WORK AS REQUIRED BY THE NATIONAL ELECTRICAL CODE AS WELL AS ANY OTHER APPLICABLE CODES.	CI INID ICE
	ELECTRICAL SIGNAL	DISCONNECT SWITCH	→ HORMALLY OPEN CONTACTS	PLUNGER PUMP	2. MATERIAL, EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE SECTION 16000 PROJECT SPECIFICATIONS	SUNRISE
	PANEL OR ENCLOSURE	20A CIRCUIT BREAKER – UPPER NUMBER INDICATES AMP TRIP RATING	H CONTACTOR OR STARTER, NUMBER DENOTES NE	EMA SIZE SCREW PUMP	WHICH ARE PART OF THE CONTRACT DOCUMENTS FOR THIS PROJECT. 3. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH	LI (GII (LILIA)
	STAND-BY GENERATOR ??? DENOTES SIZE	— LOWER NUMBER INDICATES POLES ───────────────────────────────────	NORMALLY OPEN TIME OPEN CONTACT (NOTO)	S OR S SOLENOID VALVE	EXISTING CONDITIONS AND ALL OTHER FACTORS WHICH MAY AFFECT THE EXECUTION OF THIS WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.	PREPARED BY: SUNRISE ENGINEERING, INC.
	XA	———— MOTOR OVERLOAD ────────────────────────────────────	NORMALLY CLOSED TIME OPEN CONTACT (NCTO NORMALLY OPEN TIME CLOSED CONTACT (NOTC		4. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH NEMA, ANSI, U.L. OR	25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL. (435) 743-6151
	AAA BEIGOTES BILEAREN SIZE	GT GROUND DETECTION	NORMALLY CLOSED TIME CLOSED CONTACT (NC		OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURER'S NAMES, MODELS AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS AND BID PRICE.	FAX (435) 743-7900
WP	WALL PACK 7'-2" ABOVE FLOOR	INDICATES ELECT. EQUIP. IN MCC	10 MOTOR - NUMBER INDICATES HORSE POWER R		PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING AND REVIEWED BY THE ENGINEER BEFORE ORDERING. 5. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED	PROJECT NAME:
WP/PC	WALL PACK WITH PHOTO CELL 7'-2" ABOVE FLOOR		VM VOLT METER VS VOLT METER SWITCH	ELECTRIC MOTOR OPERATED VALVE (MODULATING OR NON-MODULATING)	UNDER THIS DIVISION AGAINST DAMAGE BY OTHER TRADES,	UTAH DIVISION OF
EXIT	EMERGENCY EXIT SIGN 7'-2" ABOVE FLOOR	✓ ALARM/CONTROL PANEL★ DEVICE LOCATED IN MOTOR CONTROL CENTER	FM FLOW METER	MOTOR OPERATED VALVE WITH LIMIT SWITCH ASSEMBLY	REJECTED AS DEFECTIVE. 6. LEAVE THE SITE CLEAN, REMOVE ALL DEBRIS, EMPTY CARTONS,	WILDLIFE
C	EMERGENCY LIGHTING PACK 7'-2" ABOVE FLOOR	■ TERMINAL BLOCK LIGHT SWITCH, SINGLE POLE, MOUNT	ETM ELAPSED TIME METER (MFM) MAG FLOW METER	S NON-MODULATING PNEUMATIC	TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST,	C RESOURCES MAMMOTH CREEK
	6 LAMP 4'x2' FLUORESCENT FIXTURES –	4'-6" ABOVE FLOOR ON BUILDING WALL LIGHT SWITCH, SINGLE POINT MOUNT	VENTURI FLOW METER	OPERATED AIR SUPPLY	GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK.	HATCHERY
(6)	SURFACE MOUNTED FIXTURE	WP 4'-6" ABOVE FLOOR ON BUILDING WALL WEATHER PROOF	O_O LIMIT SWITCH	OMPUTER INPUT	7. ALL CONDUCTORS SHALL BE THHN/THWN COPPER, STRANDED RATED AT 600 VOLTS UNLESS OTHERWISE NOTED. ALUMINUM WIRE WILL NOT BE ALLOWED.	INFLOW FILTRATION
4	4 LAMP 4'-0" FLUORESCENT FIXTURES - SURFACE MOUNTED FIXTURE	MANUAL STARTER, WITH OVERLOAD PROTECTION, MOUNT 4'-6" ABOVE FLOOR ON BUILDING WALL	LEVEL PROBE LEVEL FLOAT SWITCH	COMPUTER INPUT	8. ALL UNDERGROUND CONDUIT TO BE SCHEDULE 40 PVC. MINIMUM DEPTH 30", MINIMUM SIZE 3/4". ALL UNDERGROUND ELBOWS SHALL BE RIGID LONG SWEEP WRAPPED WITH 3M-50	2005
3	3 LAMP 4'-0" FLUORESCENT FIXTURES - SURFACE MOUNTED FIXTURE	AS AMMETER SWITCH	FLOW SWITCH	ORIFICE FLOW METER	10 MIL PIPE WRAP OR APPROVED EQUAL. 9. ALL EXPOSED CONDUIT SHALL BE IMC OR RIGID STEEL	ENGINEER'S STAMP
2	2 LAMP 4'-0" FLUORESCENT FIXTURES - SURFACE MOUNTED FIXTURE	AS AMMETER SCALE SELECTOR SWITCH	PRESSURE SWITCH INSTRUMENT TRANSFORMER	STATE TEST METER	CONDUIT, WITH A MINIMUM SIZE OF 3/4". 10. ALL SAFETY SWITCHES AND OTHER DISTRIBUTION AND CONTROL	
20	2 LAMP 4'-0" FLUORESCENT FIXTURES - WITH COLD WEATHER BALLAST	TV TOUCHPLATE TRANSVERTER \$T TOUCHPLATE SWITCH	€ _{CT} CURRENT TRANSFORMER → C _{PT} POTENTIAL TRANSFORMER	LP1-XX LP1 — PANEL XX — CIRCUIT NUMBER	ELECTRICAL EQUIPMENT SHALL BE RATED FOR HEAVY DUTY SERVICE.	1012240
QE)	2 LAMP 4'-0" FLUORESCENT FIXTURES - W/EMERGENCY/BATTERY BACK-UP BALLAST	R RELAY	POWER TRANSFORMER		11. ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE GROUNDED BODY TYPE DEVICES.12. THE CONTRACTOR SHALL INSTALL ALL INSTRUMENTS AND	159731 159731
77		(TR1) TIMING RELAY	T THERMOSTAT H HUMIDISTAT		CONTROLS, INCLUDING HVAC AND CONROL PANELS. THE CONTRACTOR SHALL OBTAIN AND REVIEW ALL INSTRUMENT, CONTROL AND HVAC DRAWINGS FOR TOTAL SCOPE OF WORK.	IRA RUSSELL BOYER
© Oa	INDICATOR LAMP — LETTER INDICATES COLOR AREA LIGHT AND POLE — LETTER INDICATES DISTRIBUTION TYPE	(TDR) TIMING DELAY RELAY (CR) CONTROL RELAY COIL	CLF FUSE, CURRENT LIMITING TYPE G.F.I. GROUND FAULT INTERRUPTER		13. ALL PANELS, DISCONNECTS AND SWITCH GEAR ON THE OUTSIDE OF THE BUILDING SHALL BE NEMA 3R TYPE ENCLOSURES. CT	STATE OF WILL
	FLASHING BEACON — LETTER INDICATES COLOR	©R) CONTROL RELAY COIL M MAGNETIC RELAY	PT PRESSURE TRANSMITTER (4-20MA)		CABINET AND METER BASE SHALL BE OUTSIDE THE BUILDING. 14. SURGE SUPPRESSER SHALL BE SIZED FOR 160KVA AMPS UNLESS OTHERWISE NOTED.	
B ©	PHOTOCELL EXHAUST FAN	AM AMMETER ELECTRONIC LOUVERS	AUXILIARY CONTACT			В
- 	100W LIGHT FIXTURE (INCANDESCENT) AUDIBLE ALARM OR HORN	LOCK-OFF-STOP	INTERLOCK		BY THE CONTRACTOR. 16. ALL CONDUIT, WHERE LEAVING ELECTRICAL EQUIPMENT TO GO	
JB	UNDERGROUND JUNCTION/PULLBOX — SIZE 5 UNLESS OTHERWISE INDICATED	ON OFF ON-OFF SELECTOR SWITCH	KWH KILOWATT HOUR, DEMAND		UNDERGROUND, MUST BE ANCHORED TO THE FOUNDATION W/6" STAND-OFF BRACKETS TO ALLOW FOR CLEARANCE FOR FOOTINGS AND WALL STUDS ON THE WALLS IN THE BUILDING. ALL RGS CONDUIT AND	
J	STEEL JUNCTION/PULLBOX	HAND AUTO O O O O O HAND-OFF-AUTO SELECTOR SWITCH	KVAR KILOVOLT - AMPERE REACTIVE		ELBOWS USED UNDERGROUND WILL BE WRAPPED WITH AN APPROVED PIPE WRAP. (TYP. FOR ALL BUILDINGS)	
	ELECTRIC MANHOLE PUSHBUTTON STATION (START/STOP/RESET)	O Oox	- PUMP			MARK DATE DESCRIPTION ISSUE TYPE: 100%
	AIR HANDLER CONDENSER UNIT					ISSUE DATE: August 5, 2005
	TELEPHONE JACK					DFCM PROJECT NO: 04007520
TD	TELEPHONE DIALER					SEI PROJECT NO: 01882 CAD DWG FILE: Mmth Cr Htch E01-05 DRAWN BY: MT
						CHK'D BY: DEL COPYRIGHT: STATE OF UTAH
				NERAL ELECTRICAL ABBREVIATIONS P MOTOR CIRCUIT PROTECTOR C CONDUIT	ACB AIR CIRCUIT BREAKER SPIC SPARE INSTRUMENT CONDUIT	DRAWING TITLE
A			NO	NORMALLY CLOSED CNTL CONTROL NORMALLY OPEN IC INSTRUMENTATION CONDUIT C SPARE CONDUIT INST INSTRUMENT	AFF ABOVE FINISHED FLOOR WP WEATHERPROOF AFG ABOVE FINISHED GRADE OL MOTOR OVERLOAD EMH ELECTRICAL MANHOLE LP LIGHTING PANEL	A ELECTRICAL LEGEND
				C PROGRAMMABLE LOGIC HMI HUMAN MACHINE INTERFAC CONTROLLER S AUTOMATIC TRANSFER SWITCH	E MTU MASTER TERMINAL UNIT RTU REMOTE TERMINAL UNIT	DRAWING NUMBER
			AIS	Z ACTOMATIC HAMBIEN SYMMOH		E1
	1	2	3	4	5	SHEET 21 OF 25
						1

